Chapter 4

Land Use and Air Quality

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R645-301-410 Land Use

Co-Op mining property and adjacent area is currently used for grazing, recreation and coal mining. Plates ~~2-2~~ 1-2 and ~~2-3~~ 1-3 coupled with Table ~~2-1~~ 1-3 show the fee ownership and leasehold interests adjacent to the permit boundary and the fee ownership of contiguous areas. This information provides a guide to the land uses of the various parcels.

1**Surface Land Status/Mine Plan**

The land within the Bear Canyon Mine permit area fall under the jurisdiction of the State of Utah, U.S Forest Service, Emery County, and private surface owners.

County zoning ordinances classify the permit area as MG-1 (Mining and Grazing) and CE-1 (Critical Environment) as shown on Plate ~~2-2~~ 1-2. Site Plan approval has been issued by Emery County to approve mining.

Ownership

Plates ~~2-2~~ 1-2 and ~~2-3~~ 1-3 show the ownership of property within and contiguous to the permit boundaries. Ownership of land parcels within the permit boundaries are designated by capital letters. See Chapter ~~2~~ 1, Table ~~2-1~~ 1-3, for letter designation.

Surface Managing Authorities

Plate ~~2-2~~ 1-2 shows the surface ownership for each parcel within the permit boundaries. The local, state, and federal managing authorities are Emery County, State of Utah, Bureau of Land Management and the U.S. Forest Service.

1**Utility Corridors and Other Right-of-Ways**

Co-Op has been granted a mine access right-of-way in Section 26 along the Paved County Road accessing Bear Canyon. Utility corridors, such as power lines, telephone lines and water pipes, are shown on Plates ~~2-4~~ 5-2. All coal mining and reclamation operations will be conducted in a manner which minimizes damage, destruction, or disruption of services provided by oil, gas, and water wells; oil, gas, and coal slurry pipelines, railroads, electric and telephone lines; and water sewage lines which pass over, under, or through the permit area.

No oil, gas, or water wells, pipelines, railroads, electric and telephone lines, or water and sewer lines exist within the permit area except those associated with the mining operation, as described in ~~chapter 3~~ R645-301-521 and shown on plates ~~2-4A~~ 5-2A thru ~~2-4G~~ 5-2G.

Special use Permits and Leases

Co-Op leases land owned and leased by COP Development Company. Special use permits and information are shown in ~~Chapter 2~~ 1.

Mineral Ownership/Mine Plan Area

Other than coal, no minerals of value have been mined within the lease and permit area. No other mineral resources are known to be present in commercial quantities however there is potential for discoveries.

Coal Ownership and Mines (Permit Area and Contiguous Areas)

Coal ownership and mines in the permit area and contiguous areas are shown on Plate ~~2-3~~ 1-3 and listed with addresses in ~~Section 2.2~~ R645-34-112.330, Table ~~2-1~~ 1-1.

Coal Leases

The following coal leases are held by Co-Op adjacent to the permit area. For the locations of these coal leases, please refer to Plate 2-3.

Trail Canyon Permit Area
Bear Canyon Permit Area
BLM U-024316
BLM U-024318
BLM U-46484
BLM U-020668
BLM U-38727
BLM U-61048
BLM U-61049

Mineral Leases

BLM U-024316	(See Appendix ~~2-F~~ 1-E).
BLM U-024318	(See Appendix ~~2-F~~ 1-E).
BLM U-46484	
BLM U-020668	
BLM U-38727	
BLM U-61048	
BLM U-61049	

Oil and Gas Ownership and Leases

Oil and Gas Ownership and Leases

Co-Op represents no interest in oil or gas leases in the permit area. Federal Oil and Gas Leases U-38968 and U-58422 lie within the same area.

R645-301-411 Environmental Description

HISTORICAL AND CULTURAL RESOURCES

SCOPE

The project area is situated in the Wasatch Plateau mining area, approximately 15 miles west-southwest of Huntington, Utah USGS 7.5 Minute topographic quads of the project area include those and adjacent areas.

Surface within the large intensive survey area include privately owned, state, and Bureau of Land Management (BLM) administered lands, and U.S. Forest Service.

Environment and Locality

The Co-op Mining Company (Co-Op) project area is located on the east flank of the Wasatch Mountain Range. The highland locations are situated above the 8,000-ft. elevation adjacent to the and within Manti-LaSal National Forest while the larger mine facility in Bear Canyon lies at the base of the Wasatch Plateau between the 6,800 and 8,000-ft. elevations.

The survey area contains a wide variation of associated vegetation communities because of variations in soil, slope, elevation, and subsurface moisture retention. The rolling ridges and arroyos of the survey units incorporate pinyon and juniper communities within the broken arroyo drainage system; there plants gradually reduce their dominance upon the high flats where sagebrush vegetation exists. Serviceberry, rabbitbrush, and scattered saltbush plants also exist along these drainages. The steeper areas ascending the plateau contain mountain shrub communities, which include live oak and mountain mahogany. North-facing slopes contain Douglas fir in the drainages above the upper juniper zone.

411.100 Pre-Mining Land Use Information

History of Land Use

Prior to the beginning of the Holocene Epoch (about 10,000 years ago), the pluvial conditions of the Pleistocene in the eastern Great Basin and in the Wasatch Range began to decrease. The gradual heating and drying trend of the Anathermal (about 10,000 to 7,500 years ago) was accelerated until about 4,000 years ago, although this occurrence varied in different localities throughout the West relative to local conditions. The ecosystems of the project area were influenced by these climatic changes from cool and wet through a period of increasing desiccation. About 4,000 years ago, the climate in the Intermountain West became cooler and

wetter than at present with a subsequent remigration of floral and faunal species from the upper elevations back into the lower basins. These fluctuations in climate affected prehistoric human occupation patterns in the West, as shall be noted in a later section.

Land use techniques employed in the project area have ranged from hunting-gathering activities, which began during the pleistocene, to primitive farming technology practiced along the river bottoms by the Fremont peoples as early as 1,500 years ago. With the introduction of the Euro-American settlers in the 19th century, modern farming technology, including horticulture and livestock production, became established in the Castle Valley area. From the historic period to the present, the general project area has been primarily utilized as livestock grazing land. Some horticulture related to the livestock industry has developed along the alluvial creek bottoms that extend to the east along the drainages. In addition, some coal mining has occurred during the 19th and 20th centuries at the Wattis mines to the North and at the site of the existing mine.

The South East Utah coal region encompasses lands in general, state, county, and private ownership. Land use management plans for public and National Forest Lands generally allow for mine and mine-related activities.

Coal mining has been an integral part of the region's economy. Mining and related construction activity dominate employment in Emery county. Active mining is going on in areas adjacent to the project area.

Historically, the livestock industry has been an integral part of the region's economy. Early settlers depended on range land for grazing sheep, cattle and horses. As time passed, grazing operations became smaller, more numerous, and directly associated with small farms. Timber also has been tied to an integral part of the economy of the region, but on a much smaller scale than the livestock industry. Early settlers needed fence posts, corral poles, house logs, mine timber, railroad ties and lumber; numerous small sawmills supplied local needs. As time passed and needs diminished, most mills went out of business. Recently however, commercial timbering has begun to increase in the region.

411.110 Use of Land Existing at Time of Filing

The uses of the land at the time of filing of the permit application were coal mining, wildlife habitat, livestock grazing and outdoor recreation.

411.120 Capability of Land to Support a Variety of Uses

Present land capability and productivity will be only slightly reduced compared to the after mining capability due to the small area of actual surface disturbance. Mining activities have proceeded on the current lease areas of Co-Op historically with only minor effects on productive capabilities in terms of soils, topography, vegetation or hydrology. The soils indigenous to the area affected by the operations are described in Chapter 2. Vegetation is discussed in Chapter 3.

Surface water in the permit area is limited to surface run-off that flows most heavily during the spring and early summer months and then normally dry up. The quality and quantity of this water and of the ground water will be identified in Chapter 7.

Land productivity in terms of plant products before any mining will not differ greatly from future productivity due to the small area of actual surface disturbance. Early settlers depended upon range land for grazing sheep, cattle and horses. Timber was active, but on a much smaller scale than grazing. Early settlers needed fence posts, house logs and railroad ties.

The permit area affected by surface operations and facilities of the underground Bear Canyon mine is capable of supporting grazing and recreational uses. Grazing is most probable within Leases U-024316 and U-38727. Farming in the area is prohibited by the steep and rocky terrain.

Current and future land use will suit the physical features of the mine plan area, which is mostly steep and rocky. Such land is well suited for management as multitude area and coal mining fits appropriately into the overall land use scheme.

Land productivity data were obtained from the U.S. Soil Conservation Service, and are included in Chapter 3.

Present management emphasized livestock and wildlife grazing, and watershed development. Coal preparation and management facilities are located on fee land.

Grazing. Private land owned by COP Development Company in and contiguous to the Permit area is presently used for grazing. Grazing occurs on Leases U-024316, U-020668 ~~and~~ , U-38727, U-61048, and U61049 is managed by the U.S. Forest Service.

Recreation. Recreational use of the area affected by mining operations consists primarily of hunting and camping. Heavy hunting of mule deer occurs on the area. Camping frequently occurs on land adjacent to the property. The property owned by C.O.P. Development Company in and adjacent to the permit is currently leased to Sportsman's, Inc. as part of a Private Hunting Unit (PHU). This PHU includes a hunting cabin located adjacent to the Wild Horse Ridge within the permit. Recreational access to this facility is provided by the Bear Canyon Haul Road, the Wild Horse Ridge #3 and #4 Mine access roads.

Forestry. Merchantable timber is found within the mine permit area primarily on the flanks and top of McCadden Ridge within Lease U-024316, although much of the area is covered by pinyon pine and juniper. Limited resources also exist in the bottom of Bear Canyon, primarily within the Right Fork area.

Mining. The type and extent of mining activities are discussed in detail in Chapter 5.

411.130 Land Use Classifications Under Local Law

The land within the Bear Canyon Mine permit area fall under the jurisdiction of the State of Utah, U.S Forest Service, Emery County, and private surface owners.

County zoning ordinances classify the permit area as MG-1 (Mining and Grazing) and CE-1 (Critical Environment) as shown on Plate 1-2. Site Plan approval has been issued by Emery County to approve mining.

411.140 Cultural and Historical Resources Information

The Division of State History was contacted in reference to that portion of ground in T16S, R7E, Sec. 23, 24 and 25 that has been or may be disturbed. It was the conclusion, in both conversations, that:

a. There are no known sites of any significance existing in the area in question.

b. That the majority of the land in question has been previously disturbed due to earlier mining activities

c. That a survey of areas of future disturbance may be advantageous but to survey ground which is disturbed serves no purpose.

However, in the event that C. W. Mining is in a position to permit new facilities on disturbed ground, it has committed to a thorough Paleo-Archo Survey prior to any new disturbances. Also, should any evidence of Pale-Archo finds be discovered in the course of present construction, the site will be roped off and construction halted until the Historical Division is contacted. However, a survey was conducted the summer of 1984 and 1990 for those areas which may be adversely impacted by subsidence. This information was submitted as Appendix 4-A. Appendix 4-B contains the results of a survey of the Wild Horse Ridge Area which was conducted in 1982. Appendix 4-C contains the results of a survey of the Wild Horse Ridge Tank Seam Area conducted in 2001. Appendix 4F contains the results of a 2004 cultural resource survey of the Wild horse Ridge subsidence area. Appendix 4H and 4I contain 2006 cultural resource studies for the Mohrland lease and fee area addition.

At the request of the U.S. Forest, an additional thorough literature search will be conducted for any cultural resources within those areas that may be adversely impacted by subsidence. Co-Op Mining Company commits to conducting this literature search prior to any retreat mining within the Wild Horse Ridge area.

Application of the National Register Criteria of Eligibility, as defined under 36 CFR 60.6, indicates that there is one site within the permit area which would be considered a candidate. This is the Bear Creek Rock Shelter (Site 42 EM 1572).

411.141Cultural and Historic Resources Maps

These maps are located inside the reports on the specific areas.

411.142 Cordination With State Historic Preservation Officer

During the permitting of the Bear Canyon Mine, Co-Op counseled with the Utah Division of State Historical Preservation Office and agreed to an on-site survey. The survey was conducted by John A. Senulis, an approved archaeologist (Senco-Phenix). The survey and results are included as Appendix 4-A. Co-Op is committed to take all necessary steps to protect any sites deemed necessary in the event any are located. Mr. Senulis also conducted a survey of the Federal Lease U-024316. The results of this survey can also be found in Appendix 4-A.

Two surveys of the Wild Horse Ridge area have been conducted. The first was a survey by Kenneth Juell of the University of Utah Archaeological Center in 1982. This survey covered drill sites and access roads both on top of the ridges and in the canyon.

According to Beaver Creek Coal Company, the survey revealed (Site 42 EM 1572) and a single other historic resource. The historic resource (42 EM 1572) was excavated by Nielson & Schleisman in July, 1982. The report of the excavation is included in Appendix 4-B. The other historic resource was found on the ridge while moving from one sample section to another. It was not considered significant or diagnostic.

A survey was also conducted by Heather Weymouth of Sagebrush Consultants in 1999. The results of this survey is also included in Appendix 4-B. No additional cultural resources were identified.

411.143 Identification of Historic and Archeological Resources

See 411.140, 411.141, and 411.142.

Additionally C. W. Mining Company conducted a search for paleontologic date within the general area. The purpose of the search was to:

a. Identify all known paleontologic sites within the designated area.

b. Identify stratigraphic horizons which are potential producers of paleontologic resources.

c. Evaluate the uniqueness of known or potential fossil sites compared to similar or duplicate faunas from the same stratigraphic horizon in other nearby areas.

Most of the ground surface within the general area is composed of the Masuk Member of the Cretaceous Mancos Shale. The Masuk is the uppermost shale member of the marine Mancos, overlying the Emery Sandstone Member and underlying the Star Point Sandstone. The lithology of the Masuk is silt, mudstone, and shale. It is about 1,000 ft. (305 m) thick in the permit area, and covers most of the area in question. Above the Masuk Member is the Star

Point Sandstone, transitional marine_nonmarine sandstone bed which is approximately 500 ft. (152m) thick.

The marine Masuk Shale contains a widespread fauna consisting of abundant foraminifera (Maxfield, 1976). Ammonoids, bivalves, gastropods, fish and turtle teeth (Fisher, 1960), and probably also ostracodes (Lessard, 1973).

The Star Point Sandstone, a deltaic sequence, has produced only trace fossils from the general area. Burrowing remains of two generic types have been described from the Star Point Sandstone by Howard (1972) and Marley et al. (1979).

In every case these fossils have been reported over broad areas surrounding the study site; therefore, it is almost certain that the Masuk Shale and the Star Point Sandstone within the study area contain similar fossils.

Although no specific paleontologic sites within the designated study area are reported in published literature, there are many occurrences in the surrounding areas, strongly indicating the presence of these same fossils at the study site.

Previous paleontologic investigations demonstrate widespread occurrences of the faunas within Late Cretaceous marine and nonmarine strata in this area. Therefore, all fossils which likely occur within the study site are almost certainly duplicated in surrounding outcrops of Masuk Shale and Star Point Sandstone.

The Paleontologic resources within the permit area are neither particularly abundant nor unique compared to their counterparts in similar stratigraphic horizon within the general area. Based upon present knowledge, development of this site would not pose a threat to the paleontologic resources of the area.

411.144 Protection of Historic and Archeological Properties

A variety of archaeological and historic techniques are available for use in avoiding and protecting sites, or for mitigating potential adverse affect to significant cultural resources. Such actions, once proposed, are contingent upon comments from relevant Department of Interior agencies and Utah State Preservation offices. Avoidance procedures are the most effective means of preserving cultural resources and will be implemented in the event that a site is uncovered.

411.200 Previous Mining Activity

The permit area in was the site of an active coal mine. There is very little information available concerning the history of previous mining activity in Bear Canyon. The following information was taken from, Central Utah Coal Fields, Utah Geological & Mineralogical Survey, 1972 and from local people who were in the area back to the 1940's.

Bear Canyon enjoyed two periods of activity between 1885 and 1906, during which the coal seams were worked spasmodically. The Bear Creek Mine was owned and operated by Sam Holl (Mcelpay, 1949) and later by George A.S.R. Two seams were mined; the Bear Canyon Seam and the Hiawatha Seam. After 1906, the mine operated steadily and continuously. The twelve prospects in the canyon produced about 8,000 tons in 1906. Coal was removed with pick and shovel. Mining areas were dictated by the locations where seams were exposed.

Beginning in 1906, the land was transferred form George A. Smith to the Freed family, and in 1931 to Freed Coal and Coke. In 1943, the land was transferred to Karsen Co., and then back to Freed in 1946.

During this time, the mine was operated by a man named Stobaugh. Stobaugh used powder to loosen the coal and horses to haul the coal out of the mine. Most of the mining was done by hand. The initial area with erratic haulways shown on Plate 5-1A, was mined during this period. R. McCandless and S. McCarther operated the mine up until 1957, using similar methods. The area mined during this period is also shown on Plate 5-1A with a more regular

pattern. From 1938 to1957 the mine produced over 150,000 tons from the Bear Canyon Mine. Co-Op entered the Blind Canyon Seam through these workings.

In 1957, the land was transferred from Freed to Huntington Corp., and then Peabody Coal in 1971. From 1971 to 1977, various exchanges took place between Peabody and Nevada Electric Investment. In 1980, the original Co-Op lease area was transferred from Peabody to C.O.P. Development. In 1990 the Wild Horse Ridge was transfered from Nevada Electric to COPD. In December 1996 the Mohrland area was transferred from Intermountain Power Agency to C.O.P Development

R645-301-412 Reclamation Plan

412.100 Post-Mining Land Use Plan

Table 4-1 Proposed Post-Mining Land Use

Land Use in Relation to Mine Features

Area	Present Ownership	Pre-mining Use	Proposed Post-mining Use	Alternate Use
Mine Site Exploratory Excavations	Private	Wildlife/ Grazing/ Recreation	Wildlife/ Grazing/ Recreation	Picnic Area
Conveyor, Pipeline and Power Line Route	Private	Grazing	Grazing	Wildlife Habitat
Main Access	Private	Service Road	Service Road	Wildlife Habitat
Tank Seam Access	Private	Wildlife	Wildlife	
Wild Horse Ridge	Access/ Conveyor and Private	Wildlife/ Recreation	Wildlife/ Recreation	Timbering

Land Use in Relation to Physical Features

Area	Proposed Post-mining Use	Ability to Support Proposed Post-mining Use
Flatlands	Wildlife/Grazing Habitat/ Timber/Recreation	Adequate
Canyons	Wildlife/Grazing Habitat/ Recreation	Adequate
Moderate Elevation: North & East Slopes	Wildlife/Grazing Habitat Recreation	Adequate
High Elevation: Steep land North & East Slopes	Wildlife Habitat	Adequate
West and East Slopes	Wildlife Habitat	Moderate - Because of Harsh Natural Conditions

412.110 Method For Achieving Post-Mining Land Use

R645-301-540 describes in detail, the abandonment steps and revegetation/reclamation activities to be used to achieve the proposed post-mining land uses.

Area Cleanup. Solid waste generated in the abandonment operation will be disposed as described in R645-301-541.300.

Recovering of the General Area. Grading and backfilling will be done to achieve a final contour suitable for the wildlife/grazing/recreation habitat specified as the post-mining land use.

Wind Protection Barriers. In addition to the wind protection provided by the soil stabilation, rock wind barriers may be constructed by a small portion of the rock generated during the mining operation. During abandonment small piles of the rock may be formed where needed to provide protection and stability to reclaimed areas.

Scarifying Areas. Operational areas will be scarified after backfilling and grading prior to topsoil redistribution. Steep slope areas which must remain after abandonment will receive special ripping to create ledges, crevices, pockets and screes. This will allow better soil retention and vegetation establishment.

Distribution of Topsoil. Topsoil from the stockpile will be spread over the disturbed areas in such a manner as to prevent excessive compaction.

Fertilization and Neutralization. Fertilization or neutralization as determined ~~as~~ necessary by soil testing will be done.

Seeding and Tree Planting. Vegetation will be established to prevent erosion, to optimize the effect and to provide cover. Perennial woody species will be emphasized, along with those of proven nutritional value and ability to support wildlife and grazing. The types and amounts of such vegetation are discussed in Chapter 3 R645-301-321.

Moisture Retention. All regraded and topsoiled areas will be mulched or otherwise treated to promote germination of seeds and to retain moisture. Various other methods available are listed below:

1. Straw--Terrace Benches
2. Mulch--Wood mulch may be sprayed on terrace banks
3. Soil Retention Blanket--Wood fiber held by plastic net may be used on steeper banks.
4. Jute Mesh and Straw--Burlap material holding straw may be used on the steepest banks.
5. Tackifier--Mulch with tackifying agent may be used on steep banks.

Maintenance. Fencing, irrigation and weed control will be used only as needed, according to operational testing results.

Regrading and Reseeding. Erosion that develops in completed areas will be minimized by repeated grading and seeding.

Success Monitoring and Extended Responsibility Period. Vegetation and water will be monitored during the applicable period of liability to determine success of abandonment reclamation. A determination of revegetation success will then be made.

412.120 N/A

412.130 Alternative Post-Mining Land Use

No proposed post-mining land use is different from the pre-mining land use.

412.140 Considerations of Surface Owners

Consideration has been given to make all of the proposed land use consistent with owner plan and applicable Utah and local land use plans. Additionally correspondence will continue between C. W. Mining Company and the land owners to assure proposed post mining land use will be consistent with their land use plans. Copies of this correspondence will be included in Appendix 4-C.

412.200 Land Owners Comments

This is included in Appendix 4-C.

412.300 Suitability and Compatiblity

Plans for final fills and surface regarding is discussed in Chapter 5.

R645-301-420 Air Quality

R645-301-421 Compliance with the Clean Air Act

Coal mining and reclamation operations are conducted in compliance with the Clean Air Act and the Utah State Department of Health Air Conservation Regulations as outlined in the Air Quality Approval Order found in Appendix ~~4-D~~ 4-G.

R645-301-422 Coordination and Compliance with Utah Bureau of Air Quality

C. W. Mining Company is operating under Approval Order # DAQE-145-02 (Appendix ~~4-D~~ 4-G) issued by the State of Utah Department of Environmental Quality Division of Air Quality. Additionally C. W. Mining Company is regularly inspected by representative of the Division of Air Quality to assure compliance with the Approval Order and the Clean Air Act and the Utah State Department of Health Air Conservation Regulations .

R645-301-423 Air Pollution Control Plan

C. W. Mining Company will control air pollution by watering roads, drop points, and storage piles as outlined in Approval Order # DAQE-145-02 found in Appendix ~~4-D~~ 4-G.

Land Use

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